

SPECIES RANK FOR THE VARIETIES OF *GRINDELIA MICROCEPHALA*  
(ASTERACEAE: ASTEREAEE)

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ABSTRACT

Each of the four taxa previously regarded as a variety of *Grindelia microcephala* is here considered to be a separate species. Two new combinations are required: *Grindelia adenodonta* and *G. pusilla*. Three of the species are primarily restricted to Texas, with at least one of them occurring also in immediately adjacent México. One strictly Mexican taxon has previously been accorded species rank as *G. oaxacana*. An updated key to the Texas taxa distinguishes them based on differences in glandularity, head size, achene morphology, geography, and phenology.

KEY WORDS: *Grindelia*, Astereae, Asteraceae, Texas, México

Steyermark (1934) viewed *Grindelia microcephala* DC. as comprising four varieties, three restricted to Texas and one restricted to Oaxaca, México. In a later study of the same species (Nesom 1990), I confirmed Steyermark's recognition of three varietal taxa in Texas but excluded the Mexican taxon (*G. microcephala* var. *montana* Steyerm.) and elevated it in rank as a separate species (*G. oaxacana* Nesom, nom. nov.). A summary statement from my study (p. 321) regarding the Texas taxa is as follows: "Three remarkably distinct varieties [of *G. microcephala*] occur, each occupying a relatively restricted geographic range, almost completely allopatric with the other varieties. Although heads with mature fruits are required to distinguish them with certainty, there appear to be but few collections that might be identified as intermediates." These taxa have been held together by similarities in essentially vegetative features: annual duration; stems sparsely to moderately, closely villous; heads numerous in a loose corymb; leaves with blunt, gland tipped crenations; and the cauline leaves but little reduced upwards, continuing to immediately below the heads.

Recent field experience has allowed me to examine in greater detail the vegetative morphology as well as the strongly constant achene morphology of two of these Texas taxa. It also has emphasized the distinctiveness of each taxon as well as the lack of intergradation among any of them. Further, the closest relationships of these taxa may not lie with the other, putatively conspecific varieties. The peculiar achene dimorphism (see description in key below) in *G. microcephala* var. *adenodonta* Steyerem. is similar to that found in *G. squarrosa* (Pursh) Dunal, *G. lanceolata* Nutt., *G. tenella* Steyerem., and *G. grandiflora* Hook. Also, var. *adenodonta* is essentially a late summer and fall flowering taxon, in contrast to the other two, which are primarily spring flowering. The achenes of *G. microcephala* var. *pusilla* Steyerem. are monomorphic and deeply sculptured, like those of *G. nuda* Alph. Wood, *G. ozylepis* E. Greene, *G. arizonica* A. Gray, and others. The achenes of var. *microcephala* are strongly dimorphic in that all the disc achenes are sterile and undeveloped (with the whole head size correspondingly smaller than in the other two taxa), and the mature, developed achenes of the ray flowers are strikingly dissimilar in morphology to those of the other two taxa.

Whatever their interrelationships may prove to be, the three primarily Texas taxa previously regarded as constituting *Grindelia microcephala* appear to be justifiably treated as separate species, based on discontinuities of morphology, phenology, and geography. A distribution map and details of typification are provided in an earlier study (Nesom 1990).

1. *Grindelia microcephala* DC., *Prodr.* 5:315. 1836.
2. *Grindelia adenodonta* (Steyerem.) Nesom, *comb. et stat. nov.* BASIONYM: *Grindelia microcephala* DC. var. *adenodonta* Steyerem., *Ann. Missouri Bot. Gard.* 21:467. 1934.
3. *Grindelia pusilla* (Steyerem.) Nesom, *comb. et stat. nov.* BASIONYM: *Grindelia microcephala* DC. var. *pusilla* Steyerem., *Ann. Missouri Bot. Gard.* 21:467. 1934.

An updated key to these three species is provided below.

- a. Leaves often with conspicuous sessile or stipitate resin glands, less commonly punctate resinous; ray achenes and outer 3-5 series of disc achenes plump but somewhat compressed and with 2 corky angles, the surfaces deeply and sharply cut with transverse furrows, the very innermost achenes abortive and undeveloped but these also commonly with transverse markings; South Texas Brush Country, barely onto the southern edge of the Edwards Plateau; common and abundant colonizer, March-June.  
*G. pusilla*

- a. Leaves usually punctate resinous, rarely with sessile or minutely stipitate and inconspicuous resin glands; outer achenes rounded or compressed, the surfaces smooth, longitudinally furrowed, or slightly roughened-rugose, sometimes with a few, shallow, transverse furrows, all of the disc achenes abortive and undeveloped, or some of the disc fertile, strongly compressed and 2 angled, with many superficial, longitudinal nerves; north-east to southeast of *G. pusilla*; plants more scattered, not forming dense stands. ....(b)
- b. Ray and outer disc achenes fertile, slightly compressed, usually with 3 corky angles, the surfaces roughened-rugose, not incised but sometimes with short, shallow, transverse furrows, at least some of the inner disc achenes fertile, strongly compressed and 2 angled, as long as or longer than the outer achenes, with numerous, whitish, thin, superficial, longitudinal nerves; Blackland Prairies and Gulf Coast (Upland) Prairies; (June-)July-September. .... *G. adenodonta*
- b. Ray achenes fertile, smooth, swollen and rounded or slightly 3 sided, without corky angles, sometimes with a few, shallow, rounded, longitudinal furrows, commonly with a few short, shallow, transverse incisions, all disc achenes abortive and undeveloped; southeastern South Texas Brush Country and Coastal Sand Plains; (November-) March-June(-August). .... *G. microcephala*

The geographic distribution previously mapped for the three varieties of *Grindelia microcephala* (Nesom 1990) remains essentially correct, except for two details: (1) *G. pusilla* has recently been collected in México, immediately adjacent to its range in Maverick Co., Texas. [México: Coahuila, ca. 10 mi S of Piedras Negras on Hwy 57, 4 Jun 1992, Nesom 7354 (MEXU,TEX)]; (2) *G. microcephala* is assumed to occur in Tamaulipas, México, in areas immediately adjacent to its range in Texas. Correll & Johnston (1970) noted that *G. microcephala* (as var. *microcephala*) occurs in Tamaulipas, but I have not been able to locate a voucher for that Mexican record. *Grindelia microcephala* occurs abundantly in the Texas border counties of Cameron and Webb, and a search in peak flowering period will almost certainly confirm its existence in México.

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